AN 91-356487 [49] WPIDS
DNN N91-272859
TI **Brush** assembly for fractional horsepower DC **motor** - has two **brushes** side by side connected electrically in parallel and having different **resonant frequencies** .
DC V04 V06
IN BALNES, R F; BAINES, R F
PA (JOHN-N) JOHNSON ELECTRIC SA
CYC 3
PI GB 2244603 A 911204 (9149)*
JP 05146108 A 930611 (9328) H02K005-14
GB 2244603 B 940727 (9427) 2 pp H02K013-00
ADT GB 2244603 A GB 90-11275 900521; JP 05146108 A JP 91-114938 910520; GB 2244603 B GB 90-11275 900521
PRAI GB 90-11275 900521
IC H01R039-62; H02K013-00
ICM H02K005-14
ICS H01R039-62; H02K013-00; H02K023-00
/ BINARY DATA / IMAGE001.TIF
AB GB 2244603 A UPAB: 930928
The electric **motor brush** assembly comprises resilient electrically conductive support arranged to carry two or more **brushes** axially displaced with respect to a longitudinal axis of the **motor** and connected electrically in parallel. The support normally comprises a separate arm (18,19) for each **brush** ((20,21)).

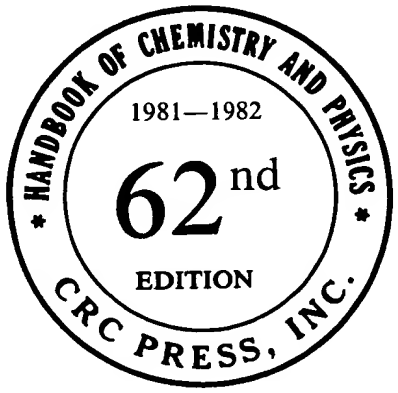
The separate arms may be arranged to have different natural resonancea frequencies of oscillation. The **brushes** may be different sizes and/or of different physical densities.

ADVANTAGE - Reduces current density required for each **brush** without increasing size of **brushes**.

3/6
FS EPI
FA AB; GI
MC EPI: V04-L01B; V06-M12

CRC Handbook of Chemistry and Physics

A Ready-Reference Book of Chemical and Physical Data



Editor

Robert C. Weast, Ph.D.

Formerly Vice President Research, Consolidated Natural Gas Service Company, Inc.
Formerly Professor of Chemistry at Case Institute of Technology

Associate Editor

Melvin J. Astle, Ph.D.

Formerly Professor of Organic Chemistry at Case Institute of Technology
and
Manager of Research at Glidden-Durkee Division of SCM Corporation

In collaboration with a large number of professional chemists and physicists whose assistance is acknowledged in the list of general collaborators and in connection with the particular tables or sections involved.

CRC

CRC Press, Inc.
Boca Raton, Florida

© 1981

Name	Synonyms and Formulae	Mol. wt.	Crystalline form, properties and index of refraction	Density or spec. gravity	Melting point, °C	Boiling point, °C	Solubility, in grams per 100 cc		
							Cold water	Hot water	Other solvents
Cobalt complexes									
...ethylenediam-...mine cobalt-(III) ...chloride	$Co[C_2H_4(NH_2)_2]_2Cl_2.3H_2O$	399.64	br pr	1.542^{17}	256; $-3H_2O$, 100		v s		
...nitrotriammine-...cobalt	$Co(NH_3)_3(NO_2)_3$	248.04	yel, rhomb pl or leaf	1.992^{25}_4	d 158	exp 164	$0.177^{16.5}$	0.28^{25}	
...nitrotetrammine-...cobalt-(III) nitrate	$[Co(NH_3)_4(NO_2)_2]NO_3$	265.07	yel, rhomb	1.922^{17}			3^{20}		
...potassium tetra-...nitrodiammine-...cobaltate (III)	$K[Co(NH_3)_2(NO_2)_4]$	316.12	yel, rhomb	2.076^{15}			$1.758^{16.5}$		
...Columbium	see Niobium.								
...Copper	Cu	**63.546**	redsh met, cub	8.92	**1083.4±0.2**	**2567**	i	i	s HNO_3, h H_2SO_4; v sl s HCl, NH_4OH
...(II) ...acetate, basic	Blue verdigris. $Cu(C_2H_3O_2)_2.CuO.6H_2O$	369.26	grnsh-bl powd				sl s		s dil a, NH_4OH; sl s al
...(II) acetate	Neutral verdigris. $Cu(C_2H_3O_2)_2.H_2O$	199.65	dk grn powd, 1.545, 1.550	1.882, anhydr- 1.93	115	d 240	7.2	20	7.14 al; s eth
...(II) acetate meta-...arsenate	Paris green. $Cu(C_2H_3O_2)_2.3Cu(AsO_2)_2$ (approx)	1013.77	em grn powd				i		s a, NH_4OH; i al
...(I) acetylide	Cu_2C_2	151.10	red, amorph, expl.		exp		v sl s		s a, KCN
...(II) azide	$Cu(NH_3)_2(N_3)_2$	181.64	dk grn cr, exp		d 100–105	exp 202	i	d	d a; i MeOH
...(II) diammine-...chloride, di-	$Cu(NH_3)_2Cl_2$	168.51	grn cr	2.32^{25}_4	260–270	d 300	i		s NH_4OH; i abs a
...(II) Azammine-...chloride, di-	$Cu(NH_3)_6Cl_2$	236.63	bl, cub	1.48^{25}_4			v s		
...ammine ...chlorate	$[Cu(NH_3)_4]S_2O_6$	291.79	vlt-bl cr		d 160		s	d	
...(II) tetrammine ...nitrate	$[Cu(NH_3)_4](NO_3)_2$	255.67	dk-bl, oct	1.91^{25}_4	d 210 exp		s		
...amine nitrate	$[Cu(NH_3)_4](NO_3)_2$	223.61	vlt-bl, tetr		$-2NH_3$ 97		v s		
...ammine sulfate	Cuprum ammoniacale. $[Cu(NH_3)_4]SO_4.H_2O$	245.74	dk-bl, rhomb, unstab	1.79^{25}_4	$-NH_3.H_2O$, 30		18.05[21.5]		
...antimonide	Cu_2Sb	312.37	gray	8.51	687		i	i	s a, NH_4OH
...arsenate	$Cu_3(AsO_4)_2.4H_2O$	540.52	blsh-grn				i		s a, NH_4OH
...hydroarsenate,	$Cu_3H_2(AsO_4)_2.2H_2O$	911.42	bl						
...ide	Cu_3As_2	467.54	bl, oct	7.56			i	i	s a, NH_4OH
...ide	Nat. domeykite. Cu_3As.	265.54	hex	8.0	830				
...arsenite	Scheele's green. $CuHAsO_3$(?)	187.47	grn powd		d		i	i	s a, NH_4OH; i al
...hydrogen(?)		105.56	col cr, v exp	3.26			0.00075[20]		d conc H_2SO_4; s NH_4Cl
...ide	CuN_3	147.58	brn-red or brn-yel cr, exp	2.604	exp 215		0.008[20]		v s dil a
...ide	$Cu(N_3)_2$	341.80	lt bl cr powd		$-H_2O$, 110		sl s		s dil a; sl s al
...benzoate	$Cu(C_7H_5O_2)_2.2H_2O$	149.16	blsh grn cr powd	3.859			s		
...metaborate	$Cu(BO_2)_2$	212.24	yel	8.116					
...ate	Cu_2B_2	427.45	bl-grn, cub	2.583	d 180	$-6H_2O$, 200	v s		s NH_4OH
...bromate	$Cu(BrO_3)_2.6H_2O$	143.45	wh, cub, 2.116	4.98	492	1345	v sl s	d	s HBr, HCl, HNO_3, NH_4OH; i acet
...bromide	CuBr (or Cu_2Br_2)	223.31	blk, monocl, deliq	4.77^{25}_4	498		v s		s al, acet, NH_3, pyr; i bz
...bromide	$CuBr_2.3Cu(OH)_2$	516.02	em grn, rhomb	4.00	$-H_2O$, 210–215	d 240–250	i	d	s dil min a, NH_4OH; v s ac a
...butyrate	$Cu(C_4H_7O_2)_2.2H_2O$	273.77	dk grn cr				v sl s		s al, eth, NH_4OH, dil a
...carbonate	Cu_2CO_3	187.09	yel	4.40	d		i	i	s a, NH_4OH
...carbonate, basic.	Nat. malachite. $CuCO_3.Cu(OH)_2$	221.11	dk grn, monocl, 1.655, 1.875, 1.909	4.0	d 200		i	d	0.026 aq CO_2; s a, NH_4OH, KCN; i al
...carbonate, basic.	Nat. azurite, chessylite. $2CuCO_3.Cu(OH)_2$	344.65	bl, monocl, 1.730, 1.758, 1.838	3.88	d 220		i	d	s NH_4OH, h $NaHCO_3$
...chlorate	$Cu(ClO_3)_2.6H_2O$	338.53	grn, cub, deliq		65	d 100	207[9]	v s	s al, acet
...chlorate, basic.	$Cu(ClO_3)_2.3Cu(OH)_2$	523.11	grn cr or amorph	3.55	d		i	i	s dil a

PHYSICAL CONSTANTS OF INORGANIC COMPOUNDS (Continued)

	Name	Synonyms and Formulae	Mol. wt.	Crystalline form, properties and index of refraction	Density or spec. gravity	Melting point, °C	Boiling point, °C	Solubility, in grams per 100 cc		
								Cold water	Hot water	Other solvents
	Calcium									
	salicylate	$Ca(C_7H_5O_3)_2.2H_2O$	350.34	wh, oct		$-2H_2O$, 120		4^{25}	s	s al
	selenate	$CaSeO_4$	183.04	col	2.88			7.9^{0}	5.4^{67}	
	selenate, dihydrate	$CaSeO_4.2H_2O$	219.07	col, monocl	2.68					
	selenide	CaSe	119.04	cub, 2.274	3.57					
	*meta*silicate(*α*)	Nat. pseudowollastonite. $CaSiO_3$	116.16	col, monocl, 1.610, 1.611, 1.664	2.905	1540		0.0095^{17}		s HCl
	*meta*silicate(*β*)	Nat. wollastonite. $CaSiO_3$	116.16	col, monocl, 1.616, 1.629, 1.631	2.5	tr 1200				
	di-*ortho*silicate (I)	Ca_2SiO_4	172.24	col, monocl, 1.717, 1.735	3.27	2130				
	di-*ortho*silicate (II)	Ca_2SiO_4	172.24	col, rhomb, 1.717, 1.735	3.28	tr to (I) 1420				
	di-*ortho*silicate (III)	Ca_2SiO_4	172.24	col, monocl, 1.642, 1.645, 1.654	2.97	tr to 675				
	(tri-)silicate	Nat. alite. Ca_3SiO_5 or $(3CaO.SiO_2)$	228.32	col, monocl, α 1.718, β 1.724		1900 (incogr)				
	silicide	$CaSi_2$	96.25	cr powd	2.5	179–180		i 0.004^{15}	d	s a, alk; i al, eth
	stearate	$Ca(C_{18}H_{35}O_2)_2$	607.04					0.193^{10}	0.89^{80}	
	succinate	$CaC_4H_4O_4.3H_2O$	212.22	col, 1.460, 1.540, 1.610						
	sulfate	Nat. anhydrite. $CaSO_4$	136.14	col, rhomb, or monocl, 1.569, 1.575, 1.613	2.960	monocl 1450	rhomb tr to monocl 1193	0.209^{20}	0.1619^{100}	s a, NH_4 salts, $Na_2S_2O_3$, glyc
	sulfate	Soluble anhydrite. $CaSO_4$	136.14	col, hex or tricl, 1.505, 1.548	2.61	tr to rhomb >200				
	sulfate half-hydrate	Plaster of Paris. $CaSO_4.\frac{1}{2}H_2O$	145.15	wh powd		$-\frac{1}{2}H_2O$, 163		0.3^{20}	sl s	s a, NH_4 salts, $Na_2S_2O_3$, glyc
	sulfate dihydrate	Nat. gypsum. $CaSO_4.2H_2O$	172.17	col, monocl, 1.521, 1.523, 1.530	2.32	$-1\frac{1}{2}H_2O$, 128	$-2H_2O$, 163	0.241	0.222^{100}	s a, NH_4 salts, $Na_2S_2O_3$, glyc
	sulfide	Nat. oldhamite. CaS	72.14	col, cub, 2.137	2.5	d		0.021^{16} d	0.048^{80} d	d a
	sulfide, hydro-	$Ca(HS)_2.6H_2O$	214.32	col pr		d 15–18		v s		s al,
	sulfite	$Ca(SO)_3 \cdot \frac{1}{2}H_2O$	129.15	col, hex		$-\frac{1}{2}H_2O$, >250		0.0043^{18}	0.0011^{100}	s H_2SO_4
	sulfite, dihydrogen	$Ca(HSO_3)_2$	202.22	yelsh liq, strong SO_2 odor				s		s a
	d-tartrate	$CaC_4H_4O_6.4H_2O$	260.21	col, rhomb, 1.525, 1.535, 1.550		d		0 0266^{0}	$0.0689^{37.5}$	sl s al
	dl-tartrate	$CaC_4H_4O_6.4H_2O$	260.21	tricl, powd or need		$-4H_2O$, 200		0.0032^{0}	$0.0078^{37.5}$	s HCl; i ac, a
	*meso*tartrate	$CaC_4H_4O_6.3H_2O$	242.20	wh, monocl or tricl pr		$-3H_2O$ <170		i	0.16^{100}	0.28^{18}, 0.85^{100} ac a
	telluride	CaTe	167.68	cub, 2.51, 2.58	4.873	>960		sl s	s	s a
	tellurite	$CaTeO_3$	215.68	wh fl				s		i al
	thiocarbonate, tri-	$CaCS_3$	148.28	yel cr				v s	v s	v s al
	thiocyanate	$Ca(SCN)_2.3H_2O$	210.29	wh cr, deliq				16^{0}	30^{20}	
	di-thionate	$Ca(SO_3)_2.4H_2O$	272.27	col, trig, 1.5496	2.176			100^{3}	d	s al
	thiosulfate	$CaS_2O_3.6H_2O$	260.30	tricl	1.872	d				
	*meta*titanate	Nat. perovskite. $CaTiO_3$	135.98	col, cub, rhomb, β 2.34	4.10	1975				
	tungstate	$CaWO_4$	287.93	wh, tetr, 1.9263, 1.9107	6.062^{20}			0.00064^{15}	0.00012^{100}	
	tungstate	Nat. scheelite. $CaWO_4$	287.93	col or w sc, tetr. 1.918, 1.934	6.06			0.2		i al, a; s NH_4Cl
	*meta*tungstate	$Ca_3H_4[H_2(W_2O_7)_6].27H_2O$	3500.96	col, tric		$-7H_2O$, 105	$-10H_2O$, d			d a
	valerate	$Ca(C_5H_9O_2)_2$	242.33					8.28^{0}	7.39^{100}	
	*meta*zirconate	$CaZrO_3$	179.30	col, monocl	4.78	2550				
	Carbon	Diamond. C	12.01	col, cub, 2.4173	3.51	>3550	4827	i	i	i a, alk
	carbon	Graphite. C	12.01	blk, hex	2.25^{20}	subl 3652–97	4827	i	i	s liq Fe; i a, alk
	carbon, amorphous	C	12.01	amorph, blk	1.8–2.1	subl 3652–97	4827	i	i	i a, alk
	(di)-bromide, hexa-	Hexabromomethane. C_2Br_6	503.48	rhomb pr, 1.740, 1.847, 1.863	3.823	148–149 d	210	i		s CS_2; v sl s al, eth
	bromide, tetra-	Tetrabromomethane. CBr_4	331.65	col, monocl or oct	3.42	tr to oct 48.4; m.p. 90.1	189.5	0.024^{20}		s al, eth, chl
	(di)-bromide, tetra-	Tetrabromethylene. C_2Br_4	343.66			57.5	227	i		s al, eth, oils
	(di)-chloride, hexa-	Hexachloro ethane. C_2Cl_6	236.74	col, rhmb, tricl or cub	2.091	subl 187				
	chloride, tetra-	Tetrachloromethane. CCl_4	153.81	col liq, 1.4601	1.5867^{20}_{20}	−23	76.8		v sl s	s al, bz, chl, eth
	(di)-chloride, tetra-	Tetrachloroethylene. C_2Cl_4	165.83	col liq, eth odor, 1.5055	1.6311^{15}_{4}	−22.4	120.8			s al, eth